


Adding

Graphics and Multimedia

Objectives

- ▶ Plan graphics use
- ▶ Insert graphics
- ▶ Specify graphic size
- ▶ Link graphics
- ▶ Insert an image map
- ▶ Add a background image
- ▶ Explore multimedia options

Text is often the most important part of a Web page, as it conveys the information that serves as the page's focus. Nevertheless, as in print media, graphics are also an important part of Web design. In addition to sometimes conveying information better than text, graphics can make a page easier to read, and play an integral part in giving a page a unique style and mood. Recent trends in graphics for the Web involve supplementing visuals with sound and animation.  Grace Dekmejian works in the Information Systems department at Nomad Ltd, a travel and sporting goods company. Along with her co-workers, Grace is creating a company Web site. To strengthen the layout and tone of the Web site, Grace wants to add Nomad's logo and other graphic images to the pages she is developing. She's also interested in learning more about incorporating sound and animation into the Web pages.





Planning Graphics Use

The use of graphics is a popular and practical way to enrich Web pages, and an important part of virtually all pages on the Web today. As with other design tools, moderation is the key to effective graphics use. A Web page filled with text but devoid of graphics can be uninviting and difficult for users to read. On the other hand, a Web page with too much space devoted to graphics can overwhelm and distract users from the focus of the page. To implement graphics most effectively, first clarify the goal of your Web page or Web site. Then, plan and incorporate limited graphics that support your layout without overwhelming it. Figure C-1 shows a Web page that balances text with limited graphics. Grace plans to incorporate the Nomad Ltd company logo into the Web site she is creating. She also wants to add two small graphics that contribute to the page's outdoor theme. While planning the use of graphics, it's important to keep a few guidelines in mind:

Details

QuickTip

You usually can tell the format of a file by checking the filename's three-character extension. For example, the name of a JPG file usually ends with .jpg.



Use supported file formats

Unlike Web page text, which is actually a part of the HTML document that creates a Web page, Web page graphics are separate files that are referenced in a page's HTML code. Many graphic file formats exist, but only three are widely supported by Web browsers: GIF, JPG, and PNG. Table C-1 gives more information about each of these three formats. As you create or acquire graphics for your Web site, make sure they are GIF, JPG, or PNG files. When Grace requests graphic files from Nomad Ltd's marketing and graphic design departments, she specifies that they need to be in one of the three Web-compatible formats.



Add alternate text

Images are a central part of the Web today, and are almost universally supported by browsers. Even so, users may be unable to view a Web page's images because of a faulty Web connection or a visual impairment. Or, they may choose not to view the images in order to speed up Web page download times. To accommodate these users, it's important that Web pages convey the same information with or without the images. The HTML tag for adding an image to a Web page also supports an attribute that allows you to specify alternate text, which appears when a graphic does not. While planning how she will incorporate graphics into her layout, Grace considers the alternate text that would be most appropriate for each.



Use graphics judiciously

If a few graphics can make a Web page more interesting, then can a lot of graphics make a Web page super-interesting? The answer is "usually not." Extra graphics actually are counterproductive, and make a Web page difficult to understand and use. The most reliable way to effectively incorporate graphics into your Web pages is to use limited graphics to support a page's structure and function, rather than add graphics for their own sake. Grace plans to add only three graphics to the Nomad Ltd home page. The logo will connect the page with the company's established identity, and the other two graphics will build on the Web page's outdoor theme.

TABLE C-1: Web-compatible graphic formats

format	best for	notes
GIF	line art and animations	proprietary format; use requires licensing fees in some cases
JPG (or JPEG)	photographs	variable compression allows tradeoff between better image quality and smaller file size
PNG	line art and photographs	recently developed format; browser support not as widespread

FIGURE C-1: Web page enhanced with graphics

Images inserted into page



Subtle image used as page background

Image map offers multiple visual links



Minimizing Web page download times

A Web page's download time is an important usability factor in which the size of graphics plays a large role. **Download time** is the amount of time it takes for the page and its associated files to transfer from their location on the Web to a user's browser. HTML files alone are relatively small, and most download within a few seconds, even over the slowest Internet connection. Graphic files, however, tend to be much larger, and take much longer to download. Download time is another reason to minimize the number and size of graphics on your Web pages; more graphics mean that users must wait longer to

see and use a page. New technologies—known as **broadband** technologies—that allow faster downloads are becoming more widespread. Universities and many large corporations also have Web connections that enable near-instantaneous downloads. However, remember that in many parts of the United States and the world, such technology is not available or prevalent; this means that on the Web as a whole, slower connections are the rule, not the exception. By adhering to sound graphics design principles, you can ensure that your Web pages are easily viewable over all types of Internet connections.



Inserting Graphics

HTML uses the `` tag to incorporate images into a Web page. The `` tag is unpaired; it requires no closing tag. However, like the opening tag for a link, the `` tag always requires an attribute. This attribute, SRC, indicates the name and location of the graphic file. The `` tag also supports many other attributes, several of which are explained in Table C-2. Grace wants to add the Nomad Ltd logo graphic to the company's Web page.

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1. Start your text editor program, open the file **HTM C-1.htm**, then save it as a text document with the filename **nomad-c.htm**

2. Select the text **`<H1>Nomad Ltd</H1>`** near the top of the document, then press **[Delete]**

3. Type **``**

Grace replaced the page heading code containing the company name with the `` tag referencing the logo graphic. To keep the files for the Nomad Web site organized, Grace created a folder called "images" where she stores the site's graphic files. Therefore, she specified the folder "images" along with the graphic's filename, "nomad.gif," in the SRC attribute. Although images are aligned at the left margin by default, specifying "left" with the ALIGN attribute ensures that the text following the graphic runs alongside, rather than below it.

4. Move the insertion point to the end of the line that begins with "`<H2>`", press **[Enter]** twice, then type **``**
The `` tag adds an outdoor photo to the Web page.

Trouble?

Some versions of Internet Explorer do not correctly display bulleted and numbered lists adjacent to a graphic.

5. Save your work, start your Web browser, cancel any dial-up activities, then open the file **nomad-c.htm**

The Nomad Ltd logo graphic appears in the upper-left corner of the browser window, and the graphic of the tree runs near or along the left edge. Grace wants to clean up the layout around the graphics.

6. Click the **text editor program button** on the taskbar, move the insertion point to the beginning of the line that starts with "`<H2>`", type **`
`**, then press **[Enter]**
Adding a line break before the remaining heading creates more space above it.

7. Click between the **2** and the **>** in the **`<H2>`** tag below the `
` you just entered, press **[Spacebar]**, then type **`ALIGN="center"`**
Figure C-2 shows the completed code for the `` tags and surrounding text.

8. Save your work, click the **browser program button** on the taskbar, then reload **nomad-c.htm**

The heading "Outside Looking Out" is now separated from the logo. See Figure C-3.

9. Click the **text editor program button** on the taskbar



Text images

In addition to adding art and photos, the `` tag also can be used to add text to Web pages. Because few fonts are common to the majority of computer systems, Web page designers are generally limited to a small number of fonts for page text. However, a designer can enter text into a graphics program, such as Adobe Illustrator, format the text with any font they choose, and create a graphic of the text. They

then can insert the graphic in a Web page, where any user who can view graphics can see the text in the font selected by the designer. Such graphics, known as **text images**, are best for only small areas of text, such as headings, to keep the page's download time to a minimum. However, text images provide an additional tool for creating well-designed, interesting Web pages that can be viewed by nearly all Web users.

FIGURE C-2: Web page code containing tag

Code to insert Nomad Ltd logo graphic

Code for extra space above heading

Code to insert outdoor photo

```

<BODY>
<FONT FACE="arial, helvetica, sans serif">
<IMG SRC="images/nomad.gif" ALIGN="left">
<BR>
<H2 ALIGN="center"><FONT COLOR="#238E68">Outside Looking
<EM>Out</EM></FONT></H2>
<IMG SRC="images/tree.jpg" ALIGN="left">

Shop online to get from your desk to the outdoors without wasting time.
<BR><BR>

```

FIGURE C-3: Web page incorporating logo and photo

Nomad Ltd logo graphic inserted

Outdoor photo inserted

Heading moved down one line and center-aligned

TABLE C-2: Commonly used IMG attributes

attribute	specifies	possible values	example
ALIGN	graphic's alignment between the left and right margins, and with respect to adjacent text	"bottom", "left", "middle", "right", "top"	ALIGN="right"
ALT	alternate text for users who don't use graphics	any text is valid, including spaces	ALT= "2000-year-old trees in Sequoia National Park"
HEIGHT	the image's display height, in pixels	a number representing this dimension	HEIGHT="550"
SRC	the location and filename of the image file	the name of the file, with location information if necessary	SRC="/graphics/sequoia.jpg"
WIDTH	the image's display width, in pixels	a number representing this dimension	WIDTH="275"



Specifying Graphic Size

The tag supports the HEIGHT and WIDTH attributes, which specify a graphic's display dimensions. The units for these attributes are **pixels** (short for "picture elements"—abbreviated "px"), which are the points of light that make up the display on a computer screen. An important feature of the HEIGHT and WIDTH attributes is that they are used to reserve space on the page for a graphic, making it unnecessary to adjust the size of the graphic itself. By letting the browser know an image's dimensions before the file finishes downloading, these attributes allow the browser to correctly lay out the rest of the page before the graphics appear. You also can supplement these attributes with the ALT attribute, which allows you to specify text that will appear in place of the graphics while they are downloading. Grace wants to add the HEIGHT and WIDTH attributes to her page's images so that users see the intended layout from the moment the page opens. She has also created some alternate text to add to each graphic.

Steps 1234

QuickTip

You can look up graphic dimensions with Netscape Navigator. Click File, click Open, then open the graphic file. The dimensions, in pixels, appear in the title bar.

QuickTip

While you can use the HEIGHT and WIDTH attributes to display a graphic smaller or larger than its actual size, image quality can be significantly reduced. Instead, you should use a graphics program to edit the file to the correct dimensions.

Trouble?

Because your images are already on your local disk, they download virtually instantaneously. Therefore, you may not see the alternate text before the graphics appear.

1. In your text editor, locate the tag that references the graphic "nomad.gif," then click to the left of the closing >

2. Press [Spacebar], then type **HEIGHT="63" WIDTH="201" ALT="Nomad Ltd"**

Grace used a graphics-editing program—like Paint, a free accessory included with Windows—to look up the exact height and width of the Nomad Ltd logo image.

3. Locate the tag that references the graphic "tree.jpg," then click to the left of the closing >

4. Press [Spacebar], then type **HEIGHT="468" WIDTH="58" ALT="View through an evergreen toward a mountainous skyline and blue sky"**

5. Save your work, click the **browser program button** in the taskbar, then reload **nomad-c.htm**

Although you may not notice the change in the graphic display, users who view your published page on the Web will see the correct page layout from the start.

6. Click the **text editor program button** on the taskbar, locate the tag that references the graphic "tree.jpg," then click to the left of the closing >

7. Press [Spacebar], then type **HSPACE="10"**

The HSPACE attribute adds horizontal space between the image and the page elements to the left and right of the image. Figure C-4 shows the completed HTML document.

8. Save your work, click the **browser program button** in the taskbar, then reload **nomad-c.htm**

As shown in Figure C-5, the alternate text appears while the images are downloading, and the tree graphic is separated from the text to its right.

9. Click the **text editor program button** on the taskbar

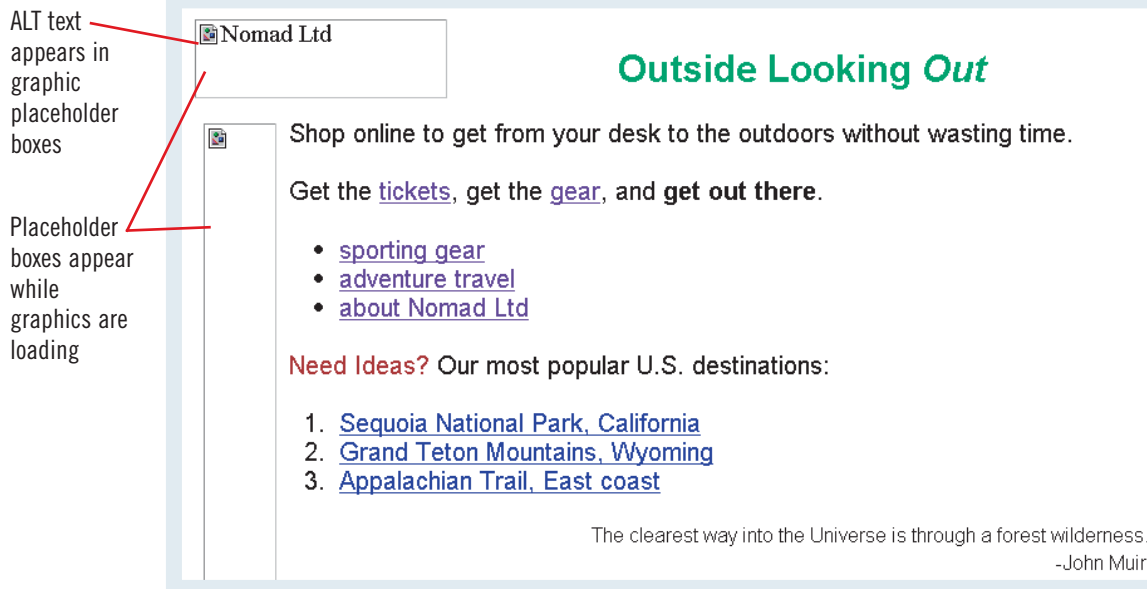
FIGURE C-4: Web page code for sized images

Code for
Nomad logo
with sizing
and alternate
text attributes

Code for
outdoor photo
with sizing,
alternate text
and horizontal
space
attributes

```
<BODY>
<FONT FACE="arial, helvetica, sans serif">
<IMG SRC="images/nomad.gif" ALIGN="left" HEIGHT="63" WIDTH="201" ALT="Nomad
Ltd">
<BR>
<H2 ALIGN="center"><FONT COLOR="#238E68">Outside Looking
<EM>Out</EM></FONT></H2>
<IMG SRC="images/tree.jpg" ALIGN="left" HEIGHT="468" WIDTH="58" ALT="View
through an evergreen toward a mountainous skyline and blue sky" HSPACE="10">
Shop online to get from your desk to the outdoors without wasting time.
<BR><BR>
```

FIGURE C-5: Web page containing sized images and alternate text



Other uses of the ALT attribute

You've seen that text specified with the ALT attribute appears while its associated image is downloading. However, this text continues to play a role in your Web pages even after the image appears. When a user moves the pointer over an image, the alternate text is visible for a few seconds in a small box. This HTML feature lets you include additional information on your Web pages. Implementation of the ALT text attribute also plays an important part in Web use by

visually impaired people, who can access the Web using an interface that speaks the contents of a page. Upon encountering a graphic, these interfaces speak the graphic's associated alternate text, if available. To maximize the availability of graphical content to these users, the alternate text should be both brief and descriptive, like the text Grace used with her outdoor photo.



Linking Graphics

Just as you can format sections of text as links, you also can add link formatting to graphics on a Web page. You simply surround the `` tag with the `<A>..` tag pair, and add the `HREF` attribute. You can use linked images to simplify navigation around your Web site by placing an identical linked image at the same location on each page. A user can click this image on any page to open the home page. Grace has created another page for the Nomad Ltd Web site describing the tours Nomad offers. Grace has placed the Nomad logo in the upper-left corner and wants to link the logo graphic to the home page. When the Web site is completed, a user will be able to click the Nomad logo on any page to return to the home page.

Steps 1234

1. In your text editor, open the file **HTM C-2.htm**, then save it as a text document with the filename **tours-c.htm**

The source for Grace's Web page about Nomad tours appears in the text editor.

2. Locate the `` tag that references the graphic "nomad.gif," click at the beginning of the line, type **``**, then press **[Enter]**

3. Click in the blank line below the "``" tag, type **``**, then press **[Enter]**

Figure C-6 shows the completed source code for this file. The `` tag for the Nomad logo graphic uses extra attributes, which are explained in Table C-3.

4. Save your work, click the **browser program button** on the taskbar, open the file **tours-c.htm** in your browser, then move the pointer over the **Nomad logo** graphic

The pointer changes to a pointing hand when it is moved over the logo graphic, as shown in Figure C-7. This lets users know that a graphic is linked.

5. Click the **Nomad logo** in the upper-left corner

The Nomad home page opens.

6. Click the **text editor program button** on the taskbar, then open the file **nomad-c.htm**

7. Locate the line beginning with "Get the", select the filename **construction.htm** in the first `<A>` tag (before the word "tickets"), press **[Delete]**, then type **tours-c.htm**

8. Repeat Step 7 for the filename **construction.htm** in the second list item ("adventure travel") in the bulleted list (under the `` tag)

Figure C-8 shows the completed Web document.

9. Save your work, click the **browser program button** in the taskbar, reload the **nomad-c.htm** page, click the second link in the bulleted list, **adventure travel**, then click the **Nomad logo**

The first link opens the Nomad Tours page, and the linked logo graphic reopens the home page.

TABLE C-3: Additional `` attributes

attribute	specifies	possible values	example
BORDER	the width of an optional border placed around the image; by default, a blue border appears around a linked graphic	a number representing this width, in pixels; to remove default border, set value to 0	BORDER="0"
VSPACE	the size of the space between the top and bottom of the graphic, and the surrounding page elements; short for "vertical space"	a number representing this space, in pixels	VSPACE="5"
HSPACE	the size of the space between the left and right edges of the graphic, and the surrounding page elements; short for "horizontal space"	a number representing this space, in pixels	HSPACE="5"

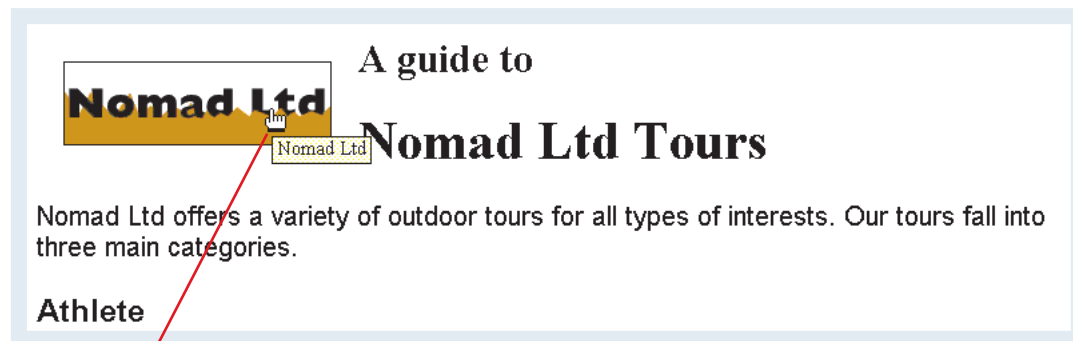
FIGURE C-6: Web page code for linked graphic

```
<BODY>
<A HREF="nomad-c.htm">
<IMG SRC="images/nomad.gif" ALIGN="left" USPACE="20" HSPACE="20" BORDER="0"
ALT="Nomad Ltd">
</A>

<H2>A guide to</H2>
<H1>Nomad Ltd Tours</H1>
```

Tag pair formats graphic as a link

FIGURE C-7: Web page containing linked graphic



White hand pointer indicates
graphic is linked

FIGURE C-8: Web page code containing links to the second page of the Web site

```
Shop online to get from your desk to the outdoors without wasting time.
<BR><BR>
Get the <A HREF="tours-c.htm">tickets</A>, get the <A
HREF="construction.htm">gear</A>, and <B> get out there</B>.
<BR><BR>

<UL>
  <LI><A HREF="construction.htm">sporting gear</A>
  <LI><A HREF="tours-c.htm">adventure travel</A>
  <LI><A HREF="construction.htm">about Nomad Ltd</A>
</UL>
```

Target changed for
first link

Target changed in
bulleted list



Inserting an Image Map

While the ability to link a graphical image to a Web page is a useful tool in Web page design, sometimes a single graphic conveys information that's appropriate for more than one link. You can take advantage of such an image by making it into an **image map**, a graphic that has different areas which are linked to different Web pages. Each of these areas, known as **hot spots**, is defined with a coordinate system that uses the `<MAP>` and `<AREA>` tags. The image map information associated with a graphic can be located anywhere in a Web document; you specify a name for each map, and use the `USEMAP` attribute to reference the map name in the `` tag that uses it. Because it's a challenging task to specify the exact pixel coordinates of areas within a graphic, most Web designers use software that simplifies image map creation by allowing you to draw the hot spots over the graphic.

Grace has designed a graphic that shows the locations of popular travel destinations in the United States. She also has created an image map for the graphic; the image map splits the image into three hot spots. She wants to insert the image map code into the home page she's creating.

Steps 1234

1. Click the **text editor program button** on the taskbar, open the file **HTM C-3.txt**, then examine the code in the file

This file contains the image map information that Grace created. Along with inserting the correct values in the `<MAP>` and `<AREA>` tags, the software Grace used also generated the `` tag for the associated graphic.

QuickTip

To ensure that you select all the text in the file, you can click Edit, then click Select All.

2. Select **all the text in the file**, press **[Ctrl][C]** to copy it to the Clipboard, then close the file, if necessary

3. Open the file **nomad-c.htm** in the text editor, place the insertion point in the blank line above the **`` tag**, press **[Enter]**, press **[Ctrl][V]** to paste the image map code from the Clipboard, then press **[Enter]**

Figure C-9 shows the completed code for the Web page containing the image map.

4. Save your work, click the **browser program button** on the taskbar, then reload the **nomad-c.htm** page

The image map indicating the locations of popular destinations appears as shown in Figure C-10.

Trouble?

Some versions of Netscape Navigator display ALT text for only the first hot spot over which the pointer moves.

5. Move the pointer over the **graphic showing travel destinations**

The text Grace specified for each `<AREA>` tag's ALT attribute appears in a box when the pointer is over the matching hot spot. In addition to the pointing hand icon, the appearance of this text is another cue for the user that this image contains links.

6. Click the **Sequoia National Park hot spot** on the image map

A Sequoia National Park Web page that Grace has begun to create opens.

7. Click the **Nomad logo** in the upper-left corner of the browser window

The logo's placement and link are consistent with Grace's site navigation plan, and the Nomad home page reopens.

8. Click the **Grand Teton Mountains hot spot** to open its link, click the **Nomad logo** to return to the home page, click the **Appalachian Trail hot spot**, then click the **Nomad logo** to return to the home page

All three hot spots work as Grace intended.

FIGURE C-9: Completed code for Web page containing image map

HTML code for hot spot coordinates

```
<BR><BR>
Get the <A HREF="tours-c.htm">tickets</A>, get the <A
HREF="construction.htm">gear</A>, and <B> get out there</B>.
<BR><BR>

<MAP NAME="parks">
<AREA HREF="apptrail.htm" SHAPE="poly" COORDS="270, 0, 270, 205, 95, 205, 213,
0" ALT="Appalachian Trail">
<AREA HREF="sequoia.htm" SHAPE="poly" COORDS="94, 205, 0, 205, 0, 42, 132,
137" ALT="Sequoia National Park">
<AREA HREF="teton.htm" SHAPE="poly" COORDS="212, 0, 132, 136, 42, 71, 42, 0"
ALT="Grand Teton Mountains">
</MAP>

<IMG SRC="images/ideas.gif" WIDTH="270" HEIGHT="205" ALIGN="right" BORDER="0"
ALT="U.S. map showing locations of popular destinations" USEMAP="#parks" >

<UL>
```

Code for Appalachian Trail hot spot

Code for Sequoia National Park hot spot

Code for Grand Teton Mountains hot spot

Preformatted tag

FIGURE C-10: Web page containing image map

Nomad Ltd

Outside Looking Out



Shop online to get from your desk to the outdoors without wasting time.

Get the [tickets](#), get the [gear](#), and **get out there**.

- [sporting gear](#)
- [adventure travel](#)
- [about Nomad Ltd](#)

Need Ideas? Our most popular U.S. destinations:

- [Sequoia National Park, California](#)
- [Grand Teton Mountains, Wyoming](#)
- [Appalachian Trail, East coast](#)

The clearest way into the Universe is through a forest wilderness.

Image map containing three hot spots



TABLE C-4: Image map tags

tag or tag pair	function	attribute	specifies	example
<MAP>.. </MAP>	marks a section of HTML code as a named image map	NAME	name of image map (for reference by tag)	<MAP NAME="parks">
<AREA>	describes shape and function of a hot spot	HREF	target link address	<AREA HREF="sequoia.htm">
		SHAPE	geometric shape of area; can be "circle," "rect" (rectangle), or "poly" (polygon)	SHAPE="poly"
		COORDS	pixel coordinates that describe the boundaries of the hot spot	COORDS="94, 205, 0, 205, 0, 42, 132, 137"
		ALT	alternate text to display or speak	ALT="Sequoia National Park">



Adding a Background Image

By default, Web pages appear with the background color set by the user's computer; that color is usually white. HTML allows you to replace the default background with an image, giving you access to another design tool. An image that you select for a Web page background needs to contrast well with the page's text and other elements. Because most Web pages format text in dark colors, such as the default of black, it's best for a background image to be a light color so the page remains legible. Additionally, the best background images have uniform color, so that users then can read text that appears over any part of the image. ✂ One of Grace's co-workers in the graphic design department gave her a graphic of a pair of hiking boots, which is suitable for use as a background image. She decides to add it to the Nomad home page to accent the page's outdoor theme.

Steps 1234

Trouble?

If you don't see the file `bootbg.jpg` listed in the images folder, make sure the Files of type list box in the Open window displays either "All Files" or "JPEG Files."

1. In your browser, open the file `bootbg.jpg` from the "images" folder
In addition to HTML documents, Web browsers also can open and display graphic files. The boots graphic is light colored, and shows just the outline of the boots. Thus, Web page users still will be able to read the text.
2. Click the browser's **Back** button to return to the Nomad home page, then click the **text editor program button** on the taskbar
3. Place the insertion point in the `<BODY>` tag, just to the left of the closing `>`
4. Press **[Spacebar]**, then type `BACKGROUND="images/bootbg.jpg"`
Grace references the background image using the `BACKGROUND` attribute of the `<BODY>` tag, as shown in Figure C-11.
5. Save your work, click the **browser program button** on the taskbar, then reload `nomad-c.htm`
As Figure C-12 shows, Grace's small background image repeats, so that it covers the entire page. This effect is called **tiling** because of its similarity to using identical small tiles to cover a large area such as a floor.
6. If you have access to a different brand of browser than the one you've used to view your Web page in this lesson, start that Web browser, and open the file `nomad-c.htm` in the second browser
Because different browsers interpret some HTML code differently, Grace makes sure she has access to the two most popular browsers—Netscape Navigator and Microsoft Internet Explorer—and she previews her page in both browsers to ensure that the page appears as she intended.
7. Close your browser(s) and text editor

FIGURE C-11: Web page to include the background image

BACKGROUND
attribute
references
background
image

```
<HTML>
<HEAD>
<TITLE>Nomad Ltd</TITLE>
</HEAD>
<BODY BACKGROUND="images/bootbg.jpg">
<FONT FACE="arial, helvetica, sans serif">

<IMG SRC="images/nomad.gif" ALIGN="left" HEIGHT="63" WIDTH="201" ALT="Nomad
Ltd">
```

FIGURE C-12: Web page containing tiled background image



Background
image is
tiled to cover
entire page



Applying a background color

In addition to using an image, you also can specify a color for your Web page's background. You indicate a color in the <BODY> tag by setting the BGCOLOR

attribute equal to the color's hexadecimal equivalent. As with a background image, it's important to select a background color that contrasts well with a page's text.

Exploring Multimedia Options

Advances in Web page design have always concentrated on increasing interactivity and making more information user-accessible, without increasing a page's clutter. In addition to adding features to HTML, today's cutting-edge advances toward these goals focus on integrating sound and video with a page's basic text and graphics. The product of this integration is known as **multimedia**. One obstacle to multimedia Web sites has been **bandwidth**, which is the data transfer capacity of a Web user's Internet connection. Because video and audio files have been much larger than HTML and image files, the download time for a Web page that included video or audio blocked its smooth integration into Web pages. Recently, multimedia has become a reality on the Web as the result of two trends: high-bandwidth Internet connections (such as DSL and cable modems), and improved compression that shrinks the size of video and audio files. Today you can be certain when you publish a multimedia Web page that many users will experience all of the page's aspects. Table C-5 summarizes the requirements for creating and playing back the main multimedia technologies. Grace has not yet planned for any multimedia in her Web site design, and wants to keep her site simple for now. However, she decides to learn more about Web multimedia so she'll understand her options as she plans for the future of the Nomad Ltd site. Multimedia implementations on the Web include:

Details



Animated GIF

The GIF file format for images allows you to combine two or more images into a single file, and to include instructions on how the images are presented. Creating such a file, known as an **animated GIF**, was for years the only widely viewable multimedia effect on the Web. Low-cost or free software is readily available for creating such effects; one program is shown in Figure C-13. The animated GIF is most prevalent in Web page banner advertisements, as it allows advertisers to display one or two images to attract a reader's interest before displaying the company logo or other target information.



Macromedia Flash animation

Flash animation is a recently developed multimedia technology, owned by Macromedia Inc. Such an animation can be created only with Macromedia's Flash software, which allows designers to create complex and highly compressed multimedia animations. Flash animations use an image format of higher quality than any of the common Web graphics formats. To experience a Flash animation, users must install a small program that works with the browser. Users can download this software, called an **add-on**, from the Web for free.



Traditional audio and video

Recent higher-bandwidth connections and more compressed formats have facilitated the wider incorporation of traditional audio and video media into Web sites. Many news organizations, such as printed newspapers and television stations, include relevant video clips alongside articles on their Web sites; musicians and record companies also use the Web to promote music and videos. As shown in Figure C-14, a clip often is embedded as a link, which a user can click to view or hear the associated file. Many radio and television stations have added **Webcasting** to their Web sites, meaning that they make their stations' normal programming available live on their Web sites. This technology also has allowed people and organizations to disseminate video and audio media programming without the financial costs of using traditional media channels.

FIGURE C-13: Animated GIF frames in a creation tool

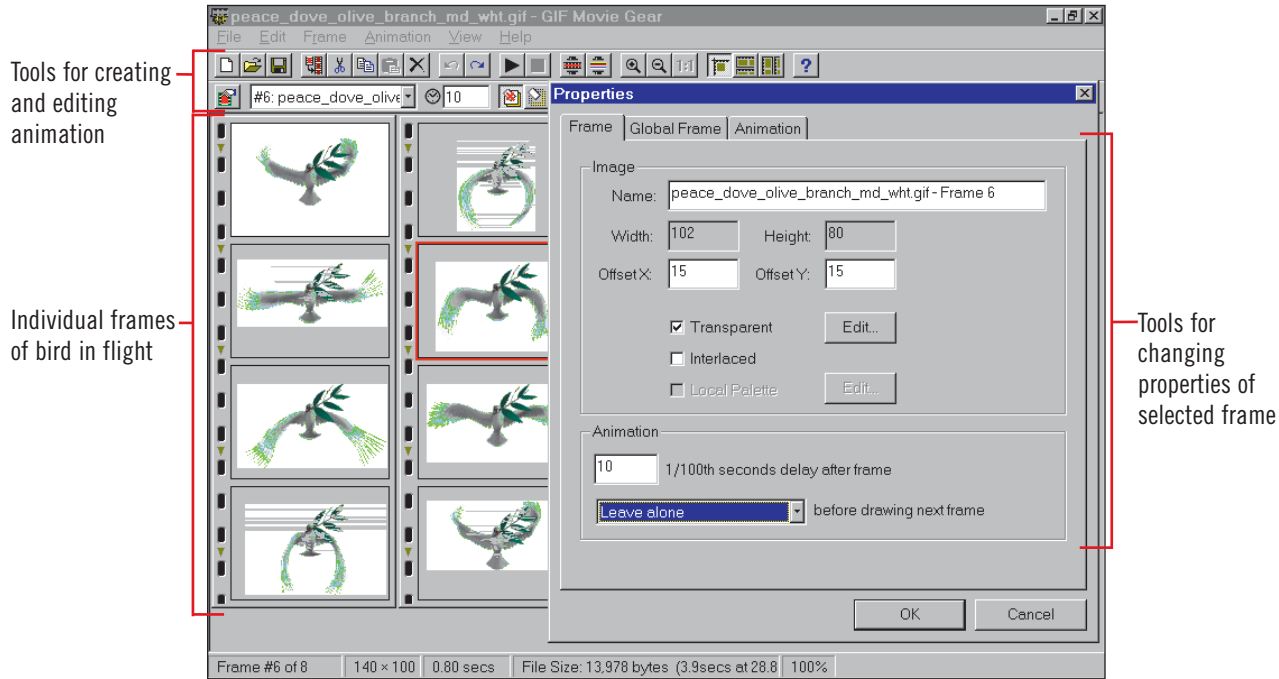


FIGURE C-14: Web site for musical artist with video and audio links



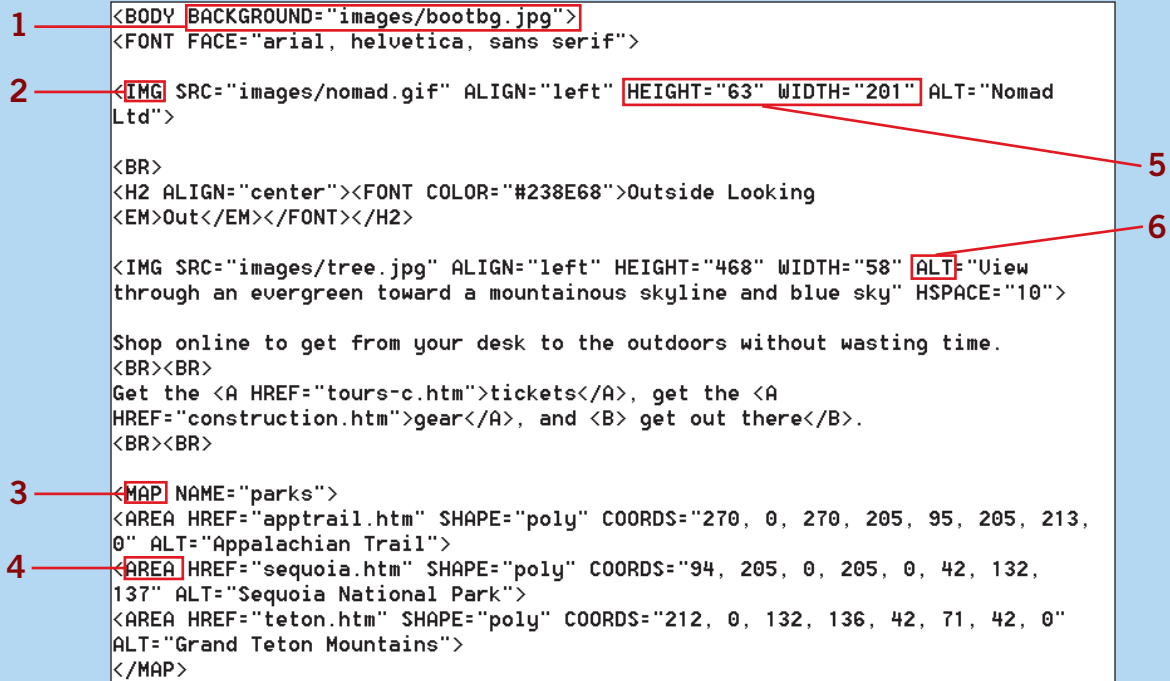
TABLE C-5: Comparison of multimedia options

technology	creation tool(s)	playback tool
animated GIF	software commonly available, free or at low cost	Web browser
Flash animation	Macromedia Flash software	Web browser with Flash add-on
traditional audio and video	audio and/or video computer translation hardware, with associated software	Web browser

► Concepts Review

Name the function of each section of code indicated in Figure C-15.

FIGURE C-15



Match each statement with the term it describes.

- | | |
|--|---------------|
| 7. A graphic in which different areas are linked to different Web pages | a. Broadband |
| 8. Each linked area in an image map | b. Hot spot |
| 9. A graphic that allows any user to see text in a font selected by the designer | c. Pixel |
| 10. A group of technologies that allows faster downloads | d. Image map |
| 11. One of the points of light that makes up the display on a computer screen | e. Text image |

Select the best answer from the list of choices.

12. Which one of the following is a graphics file format commonly used on the Internet?
 - a. MP3
 - b. JPG
 - c. TIFF
 - d. BMP
13. Which one of the following attributes for the tag adds space to the left and right of the image?
 - a. ALIGN
 - b. VSPACE
 - c. SRC
 - d. HSPACE
14. Which one of the following attributes for the tag specifies the name of the image file to display?
 - a. ALT
 - b. VSPACE
 - c. SRC
 - d. HSPACE
15. Which one of the following attributes for the tag is sometimes used to specify alternate text to replace the image?
 - a. ALT
 - b. VSPACE
 - c. SRC
 - d. HSPACE
16. To specify a background image for a Web page, you add an attribute to which tag?
 - a. <HTML>
 - b. <HEAD>
 - c. <BODY>
 - d.
17. Which attribute(s) do you use to specify a graphic's display dimensions?
 - a. COORDS
 - b. SHAPE
 - c. HSPACE and VSPACE
 - d. HEIGHT and WIDTH
18. The default measurement unit for image size is
 - a. Pixels.
 - b. Inches.
 - c. Centimeters.
 - d. Millimeters.

19. Which has long been the only widely viewable multimedia effect on the Web?

- a. JPG graphics
- b. Animated GIFs
- c. Macromedia Flash
- d. Traditional audio and video

► Skills Review

1. Insert graphics.

- a. Start your text editor, open the file HTM C-4.htm, then save it as a text document with the filename cco-c.htm.
- b. Position the insertion point on the blank line just above the line that starts with "", press [Enter], type "", then press [Enter].
- c. Save your work, start your Web browser, then open the file cco-c.htm in your browser.
- d. In your text editor, move the insertion point to the end of the line containing the " tag" you inserted, press [Enter], type "

", then press [Enter].
- e. Move the insertion point to the blank line below the " tag", press [Enter], type "

", then press [Enter].
- f. Save your work.
- g. Reload the page in your browser to verify the graphics.

2. Specify graphic size.

- a. In your text editor, locate the "" tag that references the graphic "glasses.jpg", then move the insertion point near the end of the line, just to the left of the closing ">".
- b. Press [Spacebar], then type "HEIGHT='186' WIDTH='250' ALT='Top-quality eyewear'".
- c. Save your work, then reload the page in your browser.
- d. In your text editor, locate the "" tag that references the graphic "glasses.jpg," then move the insertion point near the end of the line, just to the left of the closing ">".
- e. Press [Spacebar], then type "HSPACE='5'".
- f. Save your work.
- g. Reload the page in your browser.

3. Link graphics.

- a. In your text editor, open the file HTM C-5.htm, then save it as a text file with the name styles-c.htm.
- b. Locate the "" tag that references the graphic "cco.gif", move the insertion point to the beginning of the line, type "", then press [Enter].
- c. Click the blank line after the " tag", type "", then press [Enter].
- d. Save your work, then view the file styles-c.htm in your browser.
- e. Click the Crystal Clear Opticals logo in the upper-left corner.
- f. In your text editor open the file cco-c.htm.
- g. Locate the first list item, Basic Styles in the bulleted list, select the filename "construction.htm" in the first <A> tag, press [Delete], then type "styles-c.htm".
- h. Save your work, reload the file cco-c.htm in your browser, click the first link in the bulleted list, Basic Styles, then click the Crystal Clear Opticals logo in the page that opens.

4. Insert an image map.

- a. In your text editor, open the file HTM C-6.txt, then examine the code in this file.
- b. Select all the text in the file, press [Ctrl][C] to copy it to the Clipboard, then close the file if necessary.
- c. In your text editor, open the file cco-c.htm, place the insertion point in the blank line above the " tag", press [Enter], press [Ctrl][V] to paste the image map code from the Clipboard, then press [Enter].
- d. Move the insertion point near the end of the " tag", just to the left of the closing ">", press [Spacebar], then type "BORDER="0" USEMAP="#glasses"".
- e. Save your work, then reload the file cco-c.htm in your browser.
- f. Move the pointer over the graphic showing a pair of glasses.
- g. Click one of the "lenses" hot spots on the image map.
- h. Click the Crystal Clear Opticals logo in the upper-left corner of the browser window to return to the home page.
- i. Click anywhere on the "frames" hot spot to open its link, then click the Crystal Clear Opticals logo to return to the home page.

5. Add a background image.

- a. In your browser, open the file eggshell.jpg from the "images" folder.
- b. Click the browser's Back button to return to the CCO home page, then open the text editor.
- c. Place the insertion point in the "<BODY>" tag, just to the left of the closing ">".
- d. Press [Spacebar] then type "BACKGROUND="images/eggshell.jpg"".
- e. Save your work.
- f. Reload the page in your browser.
- g. If you have access to another Web browser besides the one you've been using (Netscape Navigator, Microsoft Internet Explorer, or others), start that Web browser, and open your Web page in the second browser to verify that the elements appear as you intended.

6. Explore multimedia options.

- a. Review the different types of multimedia described in this unit, then consider how you might incorporate one multimedia format into the Crystal Clear Opticals Web page.
- b. Print the Crystal Clear Opticals Web page as it appears in the browser.
- c. Sketch the multimedia object's placement in your printout.
- d. Write a description of the multimedia object you sketched. Include a detailed description of the graphics and/or sound it plays, its benefits to the Web page's design, and its potential drawbacks for the page's users.
- e. Close and exit your browser(s) and text editor.

► Independent Challenges

- 1.** You have been working on a Web page for your consulting business, Star Dot Star. A friend who is studying graphic arts has created a logo for you, and gave you a copy in a Web-ready file format. Now you want to add the logo to your Web page, along with a background image.
To complete this independent challenge:

- a. Start your text editor, open the file HTM C-7.htm, then save it as a text document with the filename sds-c.htm.
- b. Insert the file sds.jpg from the images folder above the <H1> text; be sure to specify height (155), width (214), alignment, and alternate text (*.*).
- c. Save your work.
- d. Start your Web browser, and preview the Web page in your browser.

- e. In your text editor, add 10 pixels of horizontal space around the logo graphic.
- f. Use `
` tags to insert space before and after the headings, so that only the heading text appears to the right of the logo graphic in the browser.
- g. If you have access to another Web browser besides the one you've been using (Netscape Navigator, Microsoft Internet Explorer, or others), start that Web browser, and open your Web page in the second browser to verify that the elements appear as you intended.

2. In your job with the local water department, Metro Water, you have created a basic Web site that eventually will provide information on water resources in your area. Your co-workers in the public relations department have given you a copy of the department logo, in GIF format. You also have located an appropriate background image for the page; you want to enhance the page's layout and appearance by adding these graphics.

To complete this independent challenge:

- a. In your text editor, open the file `HTM C-8.htm` and save it as `mw-c.htm`.
- b. Insert the graphic `mw.gif` from the images folder so it appears in the upper-left corner of the Web page. Be sure to include alternate text (water spout), and image dimensions (147 x 147).
- c. Adjust the page layout by adding horizontal space around the image, and inserting line breaks before and after the text. The heading text should appear to the right of the graphic, and the rest of the page's text should appear below the graphic.
- d. Add the graphic `waterbg.jpg` from the images folder as the page's background.



3. You have begun work on an HTML-based in-store information system at your video store, Film Clips. You want to enhance the home page layout by adding graphics. Instead of using text links on the home page, you also have created a text image from which you want to create an image map.

To complete this independent challenge:

- a. Create a basic Web page for the store. The page should contain the store name and introductory information on how to use the Web browser. Save your file as `fc-c.htm`. Use at least two different text formats.
- b. Connect to the Internet, start your Web browser, and use your browser to go to a search engine, such as one of the following:
`www.google.com`
`www.altavista.com`
`www.yahoo.com`
If you have trouble locating a search engine, go to *www.course.com*, navigate to the page for this book, click the link for the Student Online Companion, click the link for this unit, and use the links listed there as a starting point for your search.
- c. Use the search engine to find pages containing free film- or video-related clip art, then download an appropriate image for your Web page. (*Hint:* You might use search terms such as “film”, “clip art”, and/or “video”.)
- d. Add the image to your Web page, then adjust the page layout if necessary to make the image fit appropriately. If possible, be sure to preview the page in different browsers.
- e. If you have access to software that allows you to create image maps, use it to map each rectangle on the image file “`genres.jpg`” to the placeholder file “`construction.jpg`”. Be sure to add appropriate alternate text for each hot spot. (*Hint:* If you have trouble using the software, most programs provide access to a Help system when you press [F1] or click Help on the menu bar.)
- f. If you created an image map, add it to your Web page, along with the appropriate `` tag for the associated graphic file, “`genres.jpg`”. Test each hot spot on the image map to be sure the link works, and that the alternate text appears when the pointer is over the hot spot. If possible, repeat the test in a different browser.



4. Learning how to create and integrate multimedia into your Web pages is beyond the scope of this unit. However, it's a good practice to become familiar with the features of each technology, and with the different ways that Web designers are using those features.

To complete this independent challenge:

a. Connect to the Internet, start your Web browser, and use your browser to open one of the following pages:

macromedia.com/showcase (Flash animations)

www.animfactory.com (animated GIFs)

www.oneparadigm.com/newspaper.html (traditional audio/video)

If you have trouble opening these sites, go to www.course.com, navigate to the page for this book, click the link for the Student Online Companion, click the link for this unit, and use the links listed there as a starting point for your search.

b. Choose one of the three multimedia formats, and open and examine at least three examples of how it is used.

If you chose Flash animations or traditional audio/video, complete the following:

c. For each page you examine, write a paragraph analyzing the multimedia content. Include a description of how it was used, how it enhanced the page, how it detracted from the page (if applicable), and how you would change or add to the multimedia on each of the pages you find.

If you chose animated GIF, complete the following:

d. Write a paragraph analyzing each animation you examine. Include a description of the idea the animation conveyed or its purpose, the context in which it would be useful, how it would enhance a Web page, how it might detract from a page, and how you would change or add to the animation for specific applications.

► Visual Workshop

At your job at Touchstone Booksellers, a small bookstore, you have been talking with the owner about the potential benefits of doing business on the Web. You were excited to recently learn that she has assigned you the task of developing the store's Web site. You have been working on a basic Web page for the store, and want to polish the appearance of the page by adding graphics. In your text editor, open the file HTM C-9.htm, save it as a text document called tsb-c.htm, then edit the file to match the Web page shown in Figure C-16. Use the file eggshell.jpg for the background, and book.gif (148 X 148) for the open book image. Be sure to include alternate text for the book image as shown in the figure.

FIGURE C-16

